STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

REPORT OF EXAMINATION
TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

☐ Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)

☒ Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE	APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
April 1, 1993	G2-28813		

NAME
Great Bend Estates

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
PO Box 1191	Shelton	Washington	98584

PUBLIC WATERS TO BE APPROPRIATED

SOURCE
Well

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE FEET PER YEAR
	40	4.0

QUANTITY, TYPE OF USE, PERIOD OF USE		
4.0 Acre-feet per year	Multiple domestic supply	Year-round, as needed

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION--WITHDRAWAL
1150 feet North and 1000 feet East of the South quarter corner of Section 20.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	W.R.I.A.	COUNTY
SW¼ SE¼	20	22	3W	15	Mason

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Lots 13, 14, 15, 16, 9, 10, 11, 1 & 2 of Great Bend Estates of Section 20, T. 22 N., R. 3 W.W.M.

DESCRIPTION OF PROPOSED WORKS

A 366 foot well.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	WATER PUT TO FULL USE BY THIS DATE:
Started	Completed	June 1, 2006

REPORT

BACKGROUND:

On April 1, 1993, Mike Davis on behalf of the Great Bend Estates Water System, filed an *Application for Water Right* to appropriate public ground water from a well. A withdrawal rate of 40 gpm was requested for the multiple domestic supply of nine homes. The application was assigned water right number G2-28813.

A public notice of the proposed change was published, and no objections were received.

Based on the provisions of Chapters 90.03 and 90.44, Revised Code of Washington (RCW), and the following information, I recommend issuance of a permit.

INVESTIGATION:

This application was filed with the intent of securing a water right to serve 9 homes, located on Mason County's Tahuya Peninsula. The project is known as Great Bend Estates. In consideration of this application, I reviewed the information submitted with this application, records of water rights and well logs on file with this department, and several other reports and hydrogeological assessments on the area. Staff hydrogeologist Tammy Hall reviewed this application and provided technical input which is summarized below. I visited the site on August 1, 2003.

The project site is situated approximately 1000 feet inland from Hood Canal, near the crest of the upland area. The site is accessed off of Patton Road which rises steeply in elevation to the north from North Shore Road.

This system includes a 7.5 hp submersible pump, four 85 gallon captive air pressure tanks and approximately 2000 feet of distribution lines. Currently six homes are supplied by the well.

The project site is located within the general boundaries of the Tahuya River sub-basin. This region's geological characteristics are similar to much of the surrounding Puget Lowland area.

The basin's uplands are recharge areas for ground water, which occurs as precipitation and percolates downward to saturate the underlying water-bearing strata.

General Area Hydrogeology

The following information was extracted from a Department of Ecology Memorandum dated August 14, 2003, written by Water Resources Hydrogeologist, Tammy Hall:

The low rolling hills found in the lower Hood Canal watershed are remnants of a Pleistocene glacial drift plain formed by multiple glaciations that occurred in the region. Gold Mountain and Green Mountain, in the northeast corner of the watershed, consist of Tertiary age volcanic basalt and are the oldest rocks on the Tahuya Peninsula. During the glaciation, the entire area, with the exception of these two upland areas, was covered by glaciers.

During the Pleistocene "Ice Age" vast glaciers originating in Canada advanced several times into the Puget Sound Lowland. As these glaciers advanced and retreated, a complex sequence of unconsolidated and partially consolidated sediments were left behind. Deposits were also left by streams and lakes during these same periods of time.

Generally, groundwater development on the Tahuya Peninsula has been for domestic supplies. Most of the wells are relatively shallow, drawing groundwater from shallow perched aquifers found within glacial till or overlying outwash deposits. Perched groundwater occurs primarily in localized areas where impervious layers prevent or retard the downward percolation of groundwater. However, increased development of waterfront property has increased the demand for water.

Beneath the perched aquifer system lays the Sea Level aquifer system, which generally occurs between 100 feet above and 200 feet below mean sea level. There are also several deeper aquifer systems within the area. Studies conducted indicate that upper aquifers discharge to streams and lakes, while the Sea Level and deeper aquifers discharge largely to Hood Canal.

Hydrologic Analysis

The Great Bend Water System well is 336 feet deep and 6 inches in diameter. The well site is located approximately 1000 feet inland from Hood Canal at an approximate elevation of 350 feet above msl. The well report indicates drilling through several layers of glacial till, clay, and thin layers of water bearing zones. A water bearing zone was encountered at a depth of 315 feet that continued to the completed depth of the well. The well is screened from 361 to 366 feet below ground surface (bgs), which is approximately at sea level. The static water level measured after drilling was 315 feet bgs, or approximately 35 feet above mean sea level (msl). Because this well is drawing water from an aquifer at or near sea level, the water bearing zone is likely within the Sea Level Aquifer system.

Water intercepted by this well is water that would otherwise discharge to Hood Canal and therefore will not affect surface water flows in the watershed.

Seawater Intrusion

No widespread occurrences of seawater intrusion have been reported in the coastal area along the north shore of Hood Canal (Dion, N.P. and Sumioka, S.S., 1984, Seawater Intrusion into Coastal Aquifer in Washington, 1978, USGS Water Supply Bulletin 56). The 155 nearshore wells sampled as part of the study showed an average chloride concentration of 1.8 mg/L for Mason County. Although groundwater withdrawals in close proximity to the shore may cause concern, because nearshore wells in the area report relatively low chloride concentrations, the risk of seawater intrusion can be considered fairly low.

However, since the static water of this well is near sea level, there is the potential for seawater intrusion to occur. Withdrawal rates should be monitored so that a pronounced cone of depression does not develop which may induce seawater intrusion. Regular chloride monitoring should be a requirement for this application and if chloride levels increase, mitigative measures should be taken.

Neighboring Water Users

A review of Department of Ecology records indicates that no other ground water certificates have been issued within an approximate half mile radius of the subject well. There are, however, several surface water certificates issued for the spring and creeks that emerge from the uplands. These water rights have been issued primarily for single domestic supply and some limited irrigation.

There are numerous claims on file with the Department of Ecology that fall within this half mile radius. The vast majority of the claims were filed on exempt wells for general domestic purposes; however a few claim the use of springs. Well log records for the area show a variety of depths due to the variation in elevation as the topography rises to the north of the site.

There have been no reports of declining water levels or well interference in this area. Given the depth of this well, the relative sparseness of well distribution in the area, and low water demand required to serve 9 homes, I find that impairment of neighboring water users is unlikely.

Water Demand

The average daily water needs for residential supply in this area amount to approximately 400 gallons per day\connection. For 9 homes, I recommend the allocation of 4.0 acre-feet per year.

CONCLUSION:

In accordance with Chapters 90.03 and 90.44 RCW, I find there is water available for appropriation from the source in question, that the appropriation as recommended is a beneficial use, and should not impair existing rights or be detrimental to public welfare.

RECOMMENDATION:

I recommend that this application be approved and a permit be issued to allow appropriation of 40 gallons per minute from a well, 4.0 acre-feet per year, for multiple domestic supply. The period of use is year-round, as needed.

This permit is subject to the following provisions.

PROVISIONS:

The water appropriated under this application will be used for public water supply. The State Board of Health rules require public water supply owners to obtain written approval from the Office of Water Supply, Department of Health, 1112 SE Quince Street, PO Box 47890, Olympia, Washington 98504-7890, prior to any new construction or alterations of a public water supply system.

An approved measuring device shall be installed and maintained for each of the sources identified by this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use", Chapter 173-173 WAC.

Water use data shall be recorded annually and maintained by the property owner for a minimum of five years, and shall be promptly submitted to Ecology upon request.

Chapter 173-173 WAC describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition Ecology for modifications to some of the requirements. Installation, operation and maintenance requirements are enclosed as a document entitled "Water Measurement Device Installation and Operation Requirements".

Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the records of water use that are kept to meet the above conditions, and to inspect at reasonable times any measuring device used to meet the above conditions.

Permittee or certificate holder, and its successor(s) shall provide data on chloride concentrations for the well authorized by this permit or certificate with analysis performed by a state accredited laboratory. Accreditation information may be obtained from Ecology's Quality Assurance Program at (360) 895-4649. Sampling shall occur in April and August of each year, with a copy of the laboratory results for both sampling events submitted by January 31 of the following year, to the Department of Ecology, Southwest Regional Office, Olympia, Washington.

If pumping of the well authorized by this permit or certificate causes chloride concentrations to exceed 100 milligrams per liter, immediate action shall be required to prevent concentrations from increasing (such as reducing the instantaneous withdrawal rate (gpm) of the well). If corrective measures fail to prevent chloride concentrations from exceeding said level in the future, permittee or certificate holder shall relinquish the option to perfect additional allocated quantities regardless of the stage of development.

The Water Resources Act of 1971, Chapter 90.54 RCW specifies certain criteria regarding utilization and management of the waters of the State in the best public interest. Favorable consideration of this application has been based on sufficient waters available, at least during portions of the year. However, it is pointed out to the applicant that this use of water may be subject to regulation at certain times, based on the necessity to maintain water quantities sufficient for preservation of the natural environment.

The applicant is advised that notice of Proof of Appropriation of water (under which the final certificate of water right is issued) should not be filed until the permanent distribution system has been constructed and that quantity of water allocated by the permit to the extent water is required, has been put to full beneficial use.

REPORTED BY: Jill E Wakol Date: September 2, 2003

The statutory permit fee for this application is $20.00.

FINDINGS OF FACT AND DECISION

Upon reviewing the above report, I find all facts, relevant and material to the subject application, have been thoroughly investigated. Furthermore, I find water is available for appropriation and the appropriation as recommended is a beneficial use and will not be detrimental to existing rights or the public welfare.

Therefore, I ORDER a permit be issued under Ground Water Application Number G2-28813, subject to existing rights and indicated provisions, to allow appropriation of public ground water for the amount and uses specified in the foregoing report.

Signed at Olympia, Washington, this 2nd day of September, 2003.

Thomas Loranger
Water Resources Manager
Southwest Regional Office